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COMPACT MULTIPLE TUBE STEAM REFORMER

Abstract

A compact, multitube steam reformer converts a fuel into a reformate stream comprising hydrogen. In one embodiment, the reformer comprises a closed vessel and a burner disposed within the vessel. The burner comprises a start fuel manifold for receiving and distributing a start fuel stream, an oxidant manifold for receiving and distributing an oxidant stream, and a burner fuel manifold for receiving and distributing a burner fuel stream. The oxidant manifold comprises a plurality of oxidant distribution tubes, each having an inlet end and an outlet end, disposed in a separator member. The burner fuel manifold comprises a plurality of burner fuel distribution tubes, each having an inlet end and an outlet end. The burner fuel distribution tubes extend through the start fuel manifold and the oxidant manifold and are fluidly isolated therefrom. The outlet end of each of the burner fuel distribution tubes extends into the inlet end of a corresponding oxidant distribution tube, thereby forming a gap between the outer wall of the burner fuel distribution tube and the inner wall of the oxidant distribution tube. The start fuel manifold has one or more openings therein

associated with at least a portion of the burner fuel distribution tubes.